REMARKS

Claims 1-15 are pending in this application. Claims 6-15 have been added. Support for the new claims can be found throughout the specification. In particular, support for claim 6 can be found in the specification, for example, at page 12, lines 6-12. Support for claim 7 can be found in the specification, for example, at page 11, lines 11-14. Support for claim 8 can be found in the specification, for example, at page 8, lines 16-23. Support for claim 9 can be found in the specification, for example, at page 6, lines 9-17. Support for claim 10 can be found in the specification, for example, at page 7, lines 9-11. Support for claim 11 can be found in the specification, for example, at page 8, lines 16-19. Support for claim 12 can be found in the specification, for example, at page 13, lines 16-18, page 14, lines 3-6, page 15, lines 10-11, page 17, lines 6-9, and throughout the various Examples. Support for claim 13 can be found in the specification, for example, at page 15, lines 16-22. Support for claim 14 can be found in the specification at, for example, from page 13, line 16 to page 15, line 11, and at page 17, lines 6-9. Support for claim 15 can be found in the specification, for example, at page 16, lines 8-14.

Further, it is noted that the amendments to claims 3 and 5 are not made for patentability purposes (*e.g.*, to avoid the prior art) which might otherwise raise estoppel issues under the recent holding of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 56 U.S.P.Q.2d

1865 (Fed. Cir. 2000). The amendments made herein with regard to claims 3 and 5, while responding to an outstanding rejection under 35 U.S.C. § 112, second paragraph, simply serve to clarify the inventive discovery that the applicants regard as their own, without narrowing the scope of the same claims.

The changes to the specification correct grammatical and typographical errors, where these errors were introduced during preparation of the English translation of the specification of the PCT application (PCT/JP99/03495; filed June 29, 1999). Any words or sentences added by way of this Amendment were missing due to errors made in the English translation of the PCT application. All changes are supported in the PCT application, which is written in the Japanese language, and is the correct version. For example, the change at page 8, line 1 from "starch in the dough" to "cereal flour" is fully supported in the Japanese PCT application. As another example, the addition of the sentence at page 5 ("In addition, because the dough layers are thick, the taste becomes hard and shows no crispiness.") was completely missing in the English translation.

Therefore, no new matter has been added by way of the above amendments. Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, the applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues Under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claim 3 under 35 U.S.C. § 112, second paragraph, because "the baking step" is unclear. The Examiner has also stated that claim 5 may not have proper antecedent basis for the "pie dough."

The applicants have amended claim 3 so that the baking step is claimed as "while baking said pie dough." The applicants have also amended claim 5 to give the "pie dough" proper antecedent basis. Based on these claim amendments, the applicants respectfully request that the Examiner to reconsider and withdraw this rejection.

Issues Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1-5 under 35 U.S.C. § 103(a) as being unpatentable over Dougan (U.S. Patent 4,275,082; hereinafter Dougan '082) in view of Yong et al. (U.S. Patent 4,381,315; hereinafter Yong '315).

Applicants respectfully traverse the above rejection.

Present Invention and Its Advantages

It is well known in the art that frozen pie products are manufactured by wrapping a roll-in fat in a dough, then folding the dough to give a pie dough. This folding allows alternating layers of dough and fat. Upon baking the frozen dough in an oven at a relatively high temperature, however, the outside parts of the dough

are baked much faster than the inside. Therefore, because of inconsistent baking texture and undesirable taste, it is a conventional practice to either first thaw the frozen dough before proceeding with the baking step, or to bake at a low temperature over a longer period of time.

To the contrary, according to the presently claimed product, a pie product that is frozen can be placed directly into a high-power oven for a relatively short period of time to attain a final product having a crispy texture and a favorable layered structure. The present invention also provides processes for producing the frozen pie dough and for a pie incorporating the frozen pie dough.

The present invention accomplishes such a desirable product by using a combination of chemical leavening agents not conventionally used in pie dough. Specifically, a combination of a quick action type chemical leavening agent and a delayed action type chemical leavening agent are used to result in the claimed product and processes. This combination generates voids between or among the dough and/or fat layers, while a chemical leavening agent (*i.e.*, delayed action type) may remain unreacted prior to baking.

However, no references teach, disclose or suggest using the two types of chemical leavening agents according to the present invention and the present claims. This is especially true considering that no previous frozen pie dough could be baked at such a high temperature for a short period of time and attain such a desirable final product

as the presently claimed invention. These differences will be discussed in more detail below.

Distinctions between the Present Invention and the Combination of Dougan '082 and Yong '315

As discussed above, the present invention is directed to a product of a frozen pie dough which can be directly baked at a high temperature and in a short period of time. These are distinctive features because conventional methods of baking frozen pie products involve either previous thawing of the frozen product or baking the frozen product at a low temperature for long periods of time. The claimed product results in a pie with a stable and well-risen state, a layered texture, and a crispy texture. However, the references of Dougan '082 and Yong '315 fail in combination to disclose or suggest using the claimed frozen pie dough or a process of making such frozen pie dough or pie. This is not surprising since these reference do not relate to the same problem solved by the presently claimed product: a frozen pie dough comprising a combination of a quick action type and a delayed action type chemical leavening agents, wherein such combination allows the frozen pie dough to be baked at a relatively higher temperature and for a shorter period of time.

The Examiner states that Dougan '082 discloses "a frozen puff pastry product made of a dough mixture of flour, water and fat. The pastry is made by traditional folding and rolling procedure to give a

pastry having three layers of dough separated by two layers of fat." However, Dougan '082 fails to disclose "the presence of voids or a chemical leavening agent between the dough and fat layers, the density, the gas yield per gram and the step of spreading chemical leavening agent on the surface of the dough." (See Office Action dated July 27, 2001, page 3).

The Examiner also states that the Yong '315 reference teaches a method of incorporating leaveners into a dough by sprinkling one or both leaveners onto the flour/water matrix or dough. However, "Yong et al. do not specifically disclose pastry dough."

The Examiner uses Dougan '085 in view of Yong '315 to reject claims 1-5. Applicants respectfully traverse this rejection, because neither reference in combination teaches all features of the presently claimed invention, nor can both references be properly combined.

The combination of Dougan '085 and Yong '315 does not disclose the claimed invention, because all features are not disclosed by this combination. First, as the Examiner states, Dougan '085 does not disclose voids and a chemical leavening agent between the dough and fat layers. As mentioned, the present invention accomplishes such a desirable pie product by using a combination of chemical leavening agents, where these leavening agents are not conventionally used in a pie dough. Specifically, a combination of a quick action type chemical leavening agent and a delayed action type chemical leavening

agent are used to result in the claimed product and processes. This combination generates voids while a chemical leavening agent (*i.e.*, delayed action type) remains unreacted. The unreacted chemical leavening agent and voids are present between the dough layers and fat layers of the frozen pie dough. Therefore, the voids and a chemical leavening agent of the present invention are present between the dough layers and the fat layers of the frozen pie dough. In contrast, Dougan '085 lacks disclosure and suggestion of these features of voids and the chemical leavening agent (*i.e.*, as claimed in claim 1). Second, because the present invention is directed to a frozen pie dough, Dougan '085 fails to disclose all features of the presently claimed invention. Instead, Dougan '085 is directed to frozen *puff pastry* dough, and not a frozen pie dough as presently claimed. Therefore, Dougan '085 fails to disclose all features of the presently claimed invention.

Where Dougan '085 fails to disclose all features of the presently claimed invention, Yong '315 still does not disclose the remaining features. Therefore, the combination of these two references does not disclose the presently claimed invention. Yong '315 discloses a *refrigerated* dough for a baked loaf of *bread*, or other items having *bread*-like texture (see for example, Col. 1, lines 24-27). Therefore, and even as the Examiner states, Yong '315 fails to disclose the claimed frozen pie dough (*i.e.*, see claim 1).

Yong '315 fails to disclose the presently claimed invention for additional reasons. Yong '315 does not disclose or teach the voids and unreacted chemical leavening agent which are present between the dough layers and fat layers of the frozen pie dough. Even regarding the voids, the Yong '315 reference does not disclose fat layers, because Yong '315 is related to bread or bread-like dough. Yong '315 does disclose some voids. However, the voids of Yong '315 are distributed whole in the bread dough, which is clear form the term "a baked product having a bread-like texture." In contrast, the voids of the present invention are mainly located between the dough layers and fat layers. To illustrate these differences, the applicants have attached a drawing comparing the voids of the present invention with those of Yong '315. With respect to the chemical leavening agent, because Yong '315 refrigerates the bread dough, the leavening agents continue to react while being stored. In contrast, the pie dough of the present invention is frozen, allowing some of the leavening agents to remain unreacted prior to baking. Yong '315 does not even teach or suggest freezing the dough in order to keep a part of the chemical leavening agent unreacted (*i.e.*, delayed action type) and where the other part has reacted to form voids (*i.e.*, quick action type). Therefore, Yong '315 lacks disclosure of these features, and therefore fails to disclose the presently claimed invention.

Therefore, the combination of Dougan '085 and Yong '315 does not disclose the presently claimed invention. Accordingly, this rejection

is overcome. The applicants respectfully request the Examiner to reconsider and withdraw this rejection.

An additional reason why this rejection is overcome is because Dougan '085 cannot be properly combined with Yong '315. There is improper combination because there is no suggestion or motivation in the references themselves for such a combination. Further, there would be no expectation of success in combining these references.

The case law squarely holds that a proper obviousness inquiry requires consideration of two factors: (1) whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process); and (2) whether the prior would have revealed that in making the claimed invention (or practicing the invention in case of a claimed method or process), there would have been a reasonable expectation of success. *See, e.g., In re Vaeck*, 947 F.2d, 488, 493 (Fed. Cir. 1991); *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1316-17 (Fed. Cir. 2000).

The references cited by the Examiner cannot be properly combined based on the current case law. As mentioned, Dougan '085 is directed to frozen *pastry puff* dough. In contrast to Dougan '085 and the present invention, Yong '315 is directed to *refrigerated* dough for a baked product having a *bread*-like texture. There is no motivation or suggestion in these references themselves to combine them, nor would one of ordinary skill in the art do so because of such differences

between the two references. Thus, these two references have been combined based on improper hindsight reconstruction after a review of the disclosure of the present application without an adequate basis for combining these references. Therefore, there is no adequate basis for a motivation to one skilled in the art to combine Dougan '085 with Yong '315, because both references teach different products having different textures, where the products can be prepared from different states of temperature.

Another reason this rejection is overcome is because of unexpected results. Even if, *arguendo*, the Examiner has established a hypothetical *prima facie* case of obviousness, expected results exist as compared to any reference. The present invention achieves unexpected superior results that a frozen pie dough can be directly (*i.e.*, without thawing) baked at a high temperature and in a short period of time, when comparing to any conventional pie dough (*i.e.*, see Comparative Examples in specification). The present invention also results in a pie that has a stable and well-risen state with a layered texture. This invention can be easily baked resulting in a crispy texture. Thus, based on these unexpected results, the applicants traverse this rejection.

Because the combination of the Dougan '085 and Yong '315 references fail to disclose the presently claimed frozen pie dough, the combination equally fails to disclose any method of making the

novel frozen pie dough, or a method of making a product incorporating the claimed frozen pie dough.

In view of the above remarks, the applicants respectfully submit that the present claims encompass subject matter which is patentably distinguishable from the cited references. Specifically, the present claims are patentable over the combination of the Dougan '085 and Yong '315 references. This is because the combination does not teach all features of the present invention, nor could the references be properly combined. Accordingly, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By _____
Gerald M. Murphy, Jr.
Reg. No. 28,977

GMM/ETP/las
0649-0774P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please amend the paragraph beginning on page 5, line 24, as follows:

It is preferable that the number of the fat layers made of the roll-in fat is smaller than in the conventional folded pie doughs. Namely, it is preferable to form 32 to 64 fat layers, still preferably 32 to 48 fat layers. When the number of the fat layers is less than 32, the dough layers and the fat layers become too thick. In this case, the inner layers cannot uniformly puff and thus are half-baked. In addition, because the dough layers are thick, the taste becomes hard and shows no crispiness. When 64 or more fat layers are formed, the dough layers become too thin. In this case, the dough layers cannot hold the gas generated from the chemical leavening agents in the baking step and thus the whole pie dough fails to puff.

Please amend the paragraph beginning on page 6, line 9, as follows:

The chemical leavening agents, which are a mixture obtained by mixing alkaline leavening agents and leavening acid undergoing a neutralization reaction with the gas-generating agent optionally together with a dispersant, can be made a quick action type, a delayed action type, a long-lasting action type, etc. by

appropriately controlling the combination of the leavening acid depending on the purpose, and texture of the product, the method of preparing the dough and the like. As the gas-generating agent to be used in the invention, it is desirable to select sodium hydrogencarbonate which generates carbon dioxide gas. The gas generating speed can be controlled by appropriately combining the gas-generating agent with the leavening acid. In the present invention, the chemical leavening agents are spread onto the dough or the roll-in fat and then the roll-in fat is wrapped in the dough followed by folding. Thus, the chemical leavening agents are uniformly dispersed between respective dough layers and fat layers. In the chemical leavening agents, the gas-generating agent and the leavening acid are dissolved in the moisture contained in the pie dough and react with each other to thereby generate a gas in the step of preparing the pie dough. As a result, voids are formed between the dough layers and the fat layers. In the step of freezing the pie dough thus prepared, a part of the chemical leavening agents should remain in the unreacted state in the dough. Therefore, it is necessary to combine a quick action type acidic agent with a delayed action type acidic agent. As the delayed action type acidic agent which should generate a gas before the solidification of the dough in the step of baking in an oven following the freezing, it is preferable to use an acidic agent capable of reacting with the gas-generating agent at as low temperature as possible (60°C or lower),

for example, burnt alum, sodium pyrophosphate, etc. Examples of the quick action type acidic agent include sodium primary phosphate, fumaric acid, and gluconic δ-lactone. As the dispersing agent, it is preferable to use wheat flour which is employed in the pie dough. To achieve the desired dispersion, it is used in an amount of from 20 to 30% by weight in the chemical leavening agents. The content of the chemical leavening agents ranges from about 0.5 to 5% by weight, preferably from 2.0 to 4.0% by weight, based on the weight of the [starch] cereal flour in the dough. In case of using sodium hydrogencarbonate, the content of the gas-generating agent ranges from about 0.3 to 2% by weight, preferably from 0.5 to 1.5% by weight based on the weight of the cereal flour.

Please amend the paragraph beginning on page 8, line 6, as follows:

The leavening acid is used in order to control the reaction speed of the gas-generating agent. It is necessary in the present invention to determine the composition rate depending on the temperature and time for the preparation of the pie dough, the amount of the voids (thickness) formed in the pie dough and the amount of the chemical leavening agents remaining in the pie dough. The content of the leavening acid to the gas-generating agent is controlled so as to adjust the pH value of the final dough to from about 5.0 to 6.8 after the neutralization reaction with the gas-

generating agent. The ratio of the quick action type acidic agent to the delayed action type acidic agent (quick action type acidic agent: delayed action type acidic agent) ranges from 10 : 90 to 50 : 50. When the content of the chemical leavening agents is too small, it fails to exert the effect as chemical leavening agents. On the other hand, it is undesirable from the viewpoint of taste to use the chemical leavening agents in an excessively large amount, since the bitterness due to the chemical leavening agents is enhanced in this case.

Please amend the paragraph beginning on page 9, line 18, as follows:

The voids in the pie dough of the invention mean spaces which are present between the dough layers and the fat layers of the pie dough. These voids can be observed by cutting the pie dough product in a frozen state. Because of having been formed by the gas-generating reaction of the chemical leavening agents spread along the fat layer, these voids are seemingly present somewhat continuously to thereby form layers. The thickness of such a layer cannot be measured by the naked eye but can be roughly calculated based on the thickness of the pie dough, the folding number of the layers on which the chemical leavening agents have been spread, and the dough density ratio of the pie dough having the voids to a void-free pie dough of the same composition (i.e., dough density of pie dough containing

chemical leavening agent layer/dough density of untreated pie dough). Provided that the chemical leavening agents are uniformly dispersed to form layers, the thickness of the void layer is represented by the following formula:

(pie dough thickness) x (1 - dough density of pie dough containing chemical leavening agent layer/dough density of untreated pie dough) ÷ (number of chemical leavening agent layers). In case where the void thickness is too small, no effect can be achieved. In case where the void thickness is too large, the final product is provided with large voids and thus fails to achieve any crispy texture inherent to pie.

Please amend the paragraph beginning on page 10, line 16, as follows:

The number of the void layers, which depends on the manner of spreading the chemical leavening agents on the dough surface and the folding number of the fat layer, ranges from 16 to 128, preferably from 24 to 72. In case where the chemical leavening agents are spread on both faces of 32 fat layers, for example, [62] 64 void layers are formed. When an excessively large number of void layers are formed, each void becomes too thin. On the other hand, well-balanced puffing of the final product cannot be established when the number of the void layers is too small.

Please amend the paragraph beginning on page 13, line 16, as follows:

First, a dough is prepared. A cereal flour, water and a [dough] fat are mixed and kneaded in a mixer to give a dough having a hardness appropriate for the purpose. As a machine for preparing the dough, use can be made of a mixer (a horizontal mixer, a vertical mixer, etc.) commonly employed in the art.

Please amend the paragraph beginning on page 17, line 10, as follows:

In case where the frozen pie dough according to the invention is baked directly from the frozen state in a high-power oven, the gas [generateed] generated from the chemical leavening agents remaining in the unreacted state in the pie dough is concentrated in the void layers at the early stage of heating (at low pie dough temperature of 40°C or less) and triggers the puffing, thereby promoting the smooth puffing of the whole pie dough. Water vapor generated from the fat and the dough by heating migrates into the void layers and thus the whole dough layers are uniformly risen. At the same time, the vapor contributes to the uniform heat transfer toward the center of the pie dough. As a result, it becomes possible to obtain a pie which has a stable shape, can be easily baked, is well risen to give a layered texture and has a crispy and favorable texture.

Please amend the paragraph beginning on page 18, line 4, as follows:

A frozen pie dough of the composition as listed in Table 1 was prepared. Table 2 shows the composition of the chemical leavening agents given in Table 1. 750 g of hard wheat flour, 250 g of soft wheat flour, 12 g of salt, [8] 80 g of a knead-in fat and [55] 550 g of water were mixed and kneaded in a vertical 10 L mixer (Kanto Kongoki). The kneading was performed at a low speed for 3 minutes and then at a medium speed for 5 minutes. After kneading, the dough temperature was 20°C. The dough was rolled and the chemical leavening agents and the roll-in fat were wrapped therein in the following manner. The dough was rolled to give a sheet of about 210 mm in width, about 100 mm in length and about 7 mm in thickness. 30 g of the chemical leavening agents for spreading was uniformly spread all over the dough surface. Then 650 g of the roll-in fat (margarine) of about 100 mm in length, about 100 mm in width and about 7 mm in thickness was placed thereon. The dough was folded in two thereby wrapping the chemical leavening agents and the margarine. The dough having the chemical leavening agents and the margarine wrapped therein was rolled with a reverse sheeter (Kamata Kikai) to give a thin sheet of about 5 mm in thickness. After folding in two, the sheet was further rolled into a sheet of about 5 mm in thickness. After folding in four, the sheet was further rolled into a sheet of about 5 mm in thickness and then folded in four. Finally, it was

rolled into a sheet of 3.0 mm in thickness to thereby give a pie dough consisting of 32 fold-in fat layers and 64 chemical leavening agent layers. This pie dough was cut into rectangular pieces (150 mm in length x 60 mm in width, [160] 150 mm in length x 65 mm in width) and 35 g of an apple filling (moisture content: 63%) was wrapped in these two pie dough pieces (total weight: 60 g) to give an apple pie of 60 mm in width and 150 mm in length. The dough temperature at the shaping step was 22°C. The time required for shaping the dough (i.e., from the spreading of the chemical leavening agents to the introduction into a freezer) was 30 minutes. After freezing in the freezer at -30°C for 40 minutes, a frozen apple pie dough of a center temperature of -18°C was obtained.

Please amend the paragraph beginning on page 20, line 5, as follows:

Knead-in fat (margarine) [8] 80

Please amend the paragraph beginning on page 20, line 7, as follows:

Water [55] 550

Please amend the table beginning page 29 as follows:

Table 3: Pie dough conditions and evaluation of baked products of Examples (after baking in jet oven at 270°C for 6 minutes and 30 seconds)

			Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7
Observation of pie dough	Pie dough density (g/cm^3)		1.052	1.072	1.081	1.012	1.066	1.041	1.032
	Void layer		many	yes	[many] yes	[yes] many	many	yes	yes
	Remaining gas yield (ml/g)		0.48	0.56	0.21	0.94	0.43	0.35	0.48
Baked form	Rise	Maximum Minimum Difference	34 mm 28 mm 6 mm	31 mm 28 mm 3 mm	30 mm 20 mm 10 mm	33 mm 28 mm 5 mm	29 mm 22 mm 7 mm	43 mm 35 mm 8 mm	20 mm 18 mm 2 mm
	Stability		uniform and stable	uniform and stable	stable	uniform and stable	uniform and stable	stable	stable
Sensory evaluation	Appearance	Rising	7	8	6	8	7	7	6
		Layered structure	8	8	6	9	6	5	9
	Baking performance/ Crispiness	Whole	8	9	5	7	5	6	3
		Filling	8	8	5	7	8	6	2
	Evaluation of piecrust		good	good	good	somewhat bitter	good	good	good

Note[()]: Sensory evaluation data are each expressed in the average of scores (10 grades) given by 10 skilled panelists.

Please amend the paragraph beginning on page 30, line 1, as follows:

A frozen apple pie dough was prepared as in Example 1 but spreading no chemical leavening agent. After mixing the dough, no chemical leavening agent was spread on the step of wrapping the [fold-in] roll-in margarine. Subsequently, the dough was folded in four, three and four as in Example 1 to give a pie dough of 3.0 mm in thickness. This pie dough was cut into rectangular pieces (150 mm in length x 60 mm in width, [160] 150 mm in length x 65 mm in width) and 35 g of an apple filling (moisture content: 63%) was wrapped in these two pie dough pieces (total weight: 60 g) to give an apple pie of 60 mm in width and 150 mm in length. After freezing in the freezer at -30°C for 40 minutes, a frozen apple pie dough of a center temperature of -18°C was obtained.

IN THE CLAIMS:

3. (Amended) The frozen pie dough as claimed in claim 1 [characterized in that] wherein the gas yield per gram of the pie dough [in the baking step] while baking said pie dough is from 0.1 ml/g to 1.2 ml/g.

5. (Amended) A frozen pie dough product [characterized in that] wherein a filling is wrapped in [a] the pie dough as claimed in any of claims 1 to 3.

Claims 6-13 have been added.